

An interview with Nicholas C. Kraus

By

Julie D. Rosati

I first began working with Nick Kraus in 1984 at the Coastal Engineering Research Center (CERC, now the Coastal and Hydraulics Laboratory, CHL) in Vicksburg, Mississippi. Nick was hired by Dr. Robert Whalin, former director of CERC, and moved to Vicksburg from Japan where he had worked with the Nearshore Environment Research Center in Tokyo. If you have ever worked with Nick, you know that his vision (usually 1-5 years ahead of everyone else), energy, enthusiasm, and contagious can-do attitude pervade every project he works on, and touch every person involved.

His career at CERC began with a series of sediment transport field experiments at Duck, NC, and other sites (1984-1990), continued with further development of the widely-applied GENESIS shoreline change model and SBEACH dune erosion model, and extends to the present-day in his work as leader of the Coastal Inlets Research Program (CIRP, 1997-present). In addition to leading the CIRP, Nick typically works on his own research studies plus three or four applied research projects in support of U.S. Army Corps of Engineers District offices. One colleague commented, "You can send Nick an email any hour of the day or night, and he responds back with an answer within 5 minutes!"

You may have met Nick at Coastal Sediments or Coastal Dynamics conferences, which he either co-chaired or served on the organizing committees from 1985 to 2007. Nick has also served as *Shore & Beach* editor from 1988-2003 and is presently the *Shore and Beach* book review editor. In fact, Nick was the editor for this Hurricane Ike issue of *Shore and Beach*. Nick shares many commonalities with Professor M.P. O'Brien, including having numerous interests (as a physics researcher, student and teacher of martial arts, coastal engineer, English writing, and management and leadership process maven), a strong role in mentoring students and young people, and a love of coastal research, especially inlets. For

all these reasons, it is fitting that Nick received the O'Brien award (in 2004), and it is my honor to present the following interview with Nick.

■ What is your background in coastal engineering?

First, let me say that I was embarrassed to have received the O'Brien Award, considering past recipients and its name, and I'm embarrassed now about this interview, but will do my best. I met Morrough P. O'Brien three times, for which I feel privileged. I came to the field of coastal engineering unintentionally and by accident. I received a Ph.D. in physics on an obscure theoretical subject from the University of Minnesota and, after doing a post-doc there in 1973 (they needed someone to teach classes, likely), I left science to pursue martial arts studies in Japan, an avocation. After four of 11 years in Japan, through an unusual circumstance I was introduced to the coastal engineering pioneer, Professor Kiyoshi Horikawa at the University of Tokyo, and his multi-organizational research consortium, the Nearshore Environment Research Center (NERC). From there, my training in coastal science and engineering was hands-on. I owe my formative professional experience to Dr. Tamio Sasaki, Professor Horikawa, and others in the NERC group, who exhibited patience and flexibility. Mainly, I learned by reading and through field work, particularly just throwing myself in the water. I was a good swimmer, so that's why they probably kept me around – for deploying instruments in the surf zone when the water was over their heads (laughing).

■ Can you mention a favorite attraction for you about the coastal area?

Tamio Sasaki had recently completed his Ph.D. dissertation on rip currents. Early on, he took me to the top of a coastal cliff on the Pacific Ocean coast of Japan, a stunning view of large rip currents stretching along the shore from horizon

to horizon. The regularity of spacing and size of the rips was awesome and almost unbelievable. Rip currents, the longshore current, and tidal currents have therefore attracted me. One of my first projects in Japan was to help formulate safety guidelines concerning the danger of swimming near rip currents. The material developed by Dr. Andy Short in Australia was an excellent go-by in this regard. In those days, I purposely rode large rip currents (in a wet suit for buoyancy), and let me tell you it is frightening to see the shore recede to almost nothing as the rip takes you offshore and puts many waves between you and dry land. One can easily understand how a person would panic if caught in a rip.

■ During your career, what are some changes you have noted in the areas of coastal management, coastal engineering, and coastal science?

Well, as I noted in the welcoming address at the 1999 Coastal Sediments conference, it seems there has been a change towards coastal geomorphologists doing studies at the traditional shorter scales of motion of coastal engineers, and coastal engineers doing studies at the traditional longer scales of geomorphologists. This trend of interdisciplinary work and broadening of perspectives on time scales and space scales of coastal change has continued.

■ Where do you see the next challenges for our coasts and its stewardship?

I think the other O'Brien interviews have been much more profound than I can be in answering this type of question. If you pin me down, and I guess you are doing that, I would say the continuing and central challenge is reconciliation of the rights of private property owners and the public. From Roman Law on water rights, one must distinguish what has common ownership (can be used by all nations), what belongs to the public (through government), and what belongs to the private citizen. I hope I didn't make

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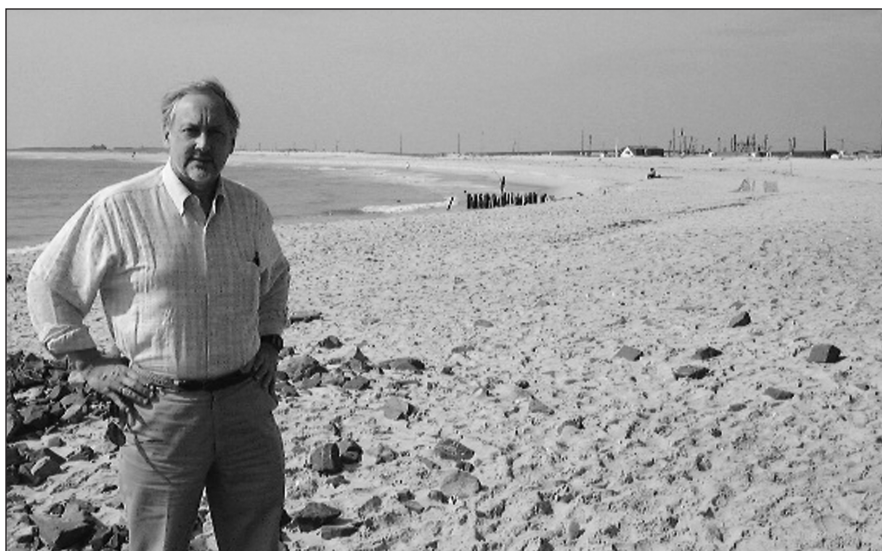


Figure 1. Nick Kraus standing on the beach west of Shinnecock Inlet, NY, November 2000.

this up (laughing). These rights need to be resolved for long-term stewardship of the coast, recognizing regional continuity of sand movement.

If you don't mind, another important and somewhat neglected science-type challenge I'd like to mention is the connection of the nearshore and the ocean — put more oceanography into coastal processes. I don't think we are done with that.

■ If you were to advise a young person thinking of studying coastal engineering or science, what would you say to them?

Great field! Almost anything we do is new, because every location involves a different balance of forces and boundary conditions. There is no coastal turnkey project or study. All are interesting and challenging, and all well-done studies are publishable. *Shore & Beach* encourages papers submitted by students, by the way. Recently, I have been dabbling in simple ecological modeling of the population dynamics of Piping Plover, a federally listed threatened migratory shore bird. There seems to be no end of subjects for the student of the coast — “student” in the wide and enduring sense.

■ When did you decide to go into the coastal engineering field?

As I mentioned, my being in the coastal area was not a conscious professional decision. Its attraction is the challenge of trying to help others with their coastal problems, which is to me much

more interesting and also more useful to society than trying to solve problems I might dream up.

■ Who were the people before you who most influenced your work in coastal engineering or were the inspiration for your career?

I learned through reading papers and books, so there were many international influences. Besides Professor Horikawa, who is extremely hard-working and almost impossible to dare to emulate, one of my first coastal contacts in the United States was Professor Robert Wiegel at UC Berkeley, a giant in the field and a former *Shore & Beach* editor who advised me when I became editor. I hope I am slightly as good an example to others as such people were to me. Also, I'd like to mention Dr. Choule Sonu as an early inspiration. His 1968 paper in the International Coastal Engineering Conference Proceedings “Collective Movement of Sediment” was a great influence on me and sparked my early and sustained interest in nearshore morphology change.

■ In thinking about your career in coastal engineering, what are the things you've done that you are most proud of?

Well, I'd like to forget a lot of things I've done (laughing). I've been fortunate to have worked with many creative people, some collaborations continuing 20-30 years such as with Professors Hans Hanson and Magnus Larson of the University of Lund, Sweden (oh, and with you, too, Julie). Watching new insights

and approaches emerge from nowhere is a delight.

■ What's your favorite beach and favorite type of beach material?

I like the south shore beaches of eastern Long Island, New York, where I learned to swim. My family moved to Long Island from New York City when I was in sixth grade and a weak swimmer. Prior to swimming in the Atlantic, I had assumed all the world's oceans tasted like chlorine (laughing). My high-school mates taught me how to swim through playing around in the water. Also, I like the barrier beaches and lagoons in northern California. It's enjoyable to see the different wildlife on these beaches. Both locations have typically have pebbles and gravel in the swash zone of these sandy beaches.

■ Since this is for *Shore & Beach*, what article do you find yourself using and referencing over and over again?

I became an ASBPA member while in Japan. At that time, the 1970s and early 1980s, Peter Graber, an attorney in California and an ASBPA director, was publishing a series of articles under the general title “The Law of the Coast In a Clamshell.” I think there were 26 of these articles covering federal-state boundaries in various coastal states. I don't believe anyone has published more in *Shore & Beach* than Peter Graber. I don't reference these articles, but the concept of a marine boundary and general area of law of the coast influenced my perspective. *Shore & Beach* articles that I do reference are storm reports and site histories. For example, recently, I referenced authoritative articles on the Galveston seawall written in 1938 and 1961, which were helpful in establishing background for the Hurricane Ike issue we are producing now.

If you don't mind, perhaps this is a good time to tell an insider editorial story that might be of interest to *Shore & Beach* readers. Past *Shore & Beach* editors had accumulated a collection of old issues. When you became a new editor, as I did in late 1998, the previous editor (in my case, it was Professor Paul Komar) would mail boxes containing the old issues. It was engrossing and entrapping to read the old issues, but the collection was very incomplete. My editorial assistant, Holley Messing, got the idea and took it

upon herself to complete the collection by making interlibrary requests, then copying the originals as they were sent to us. In this regard, Linda Vida, director at the UC Berkeley Water Resource Center Archives, was invaluable and trusting in loaning precious copies of unique issues. I had known Linda for a long time, but I am sure that Professor Wiegel was in the background vouchsafing for us.

Anyway, from that point, Holley starting making PDF files of the issues and compiling a list of key words for all major articles. This was a multi-year part-time effort, one way or the other supported by the Corps of Engineers R&D programs. The project was eventually adopted by the ASBPA executive directors Kate and Ken Gooderham, and it was finished in a compilation on CD by ASBPA director Lesley Ewing that is available for purchase at www.asbpa.org. To conclude the story, I'd like to acknowledge the past editors of *Shore & Beach* for tenaciously holding on to and transferring old issues of *Shore & Beach*, and to Holley for pursuing capture of the entire series. The CD collection of *Shore & Beach* articles that start in 1933 is a valuable resource documenting the management, politics, engineering, and science of the United States coast.

■ **Do you have any final words of advice to young students who are in high school or just starting college about why they should consider a future career in coastal engineering or coastal management?**

Yes! You can do field work, lab experiments, mathematics, conceptual modeling, and numerical modeling. Your choice, or do them all! The coastal science and engineering fields are open ended. Lessons learned need to be transferred around the world to allow society and nature to coexist on the coast in a sustainable way.



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